

Updates on Vegetation Structure From LiDAR in the Forest Service Pacific Northwest Region

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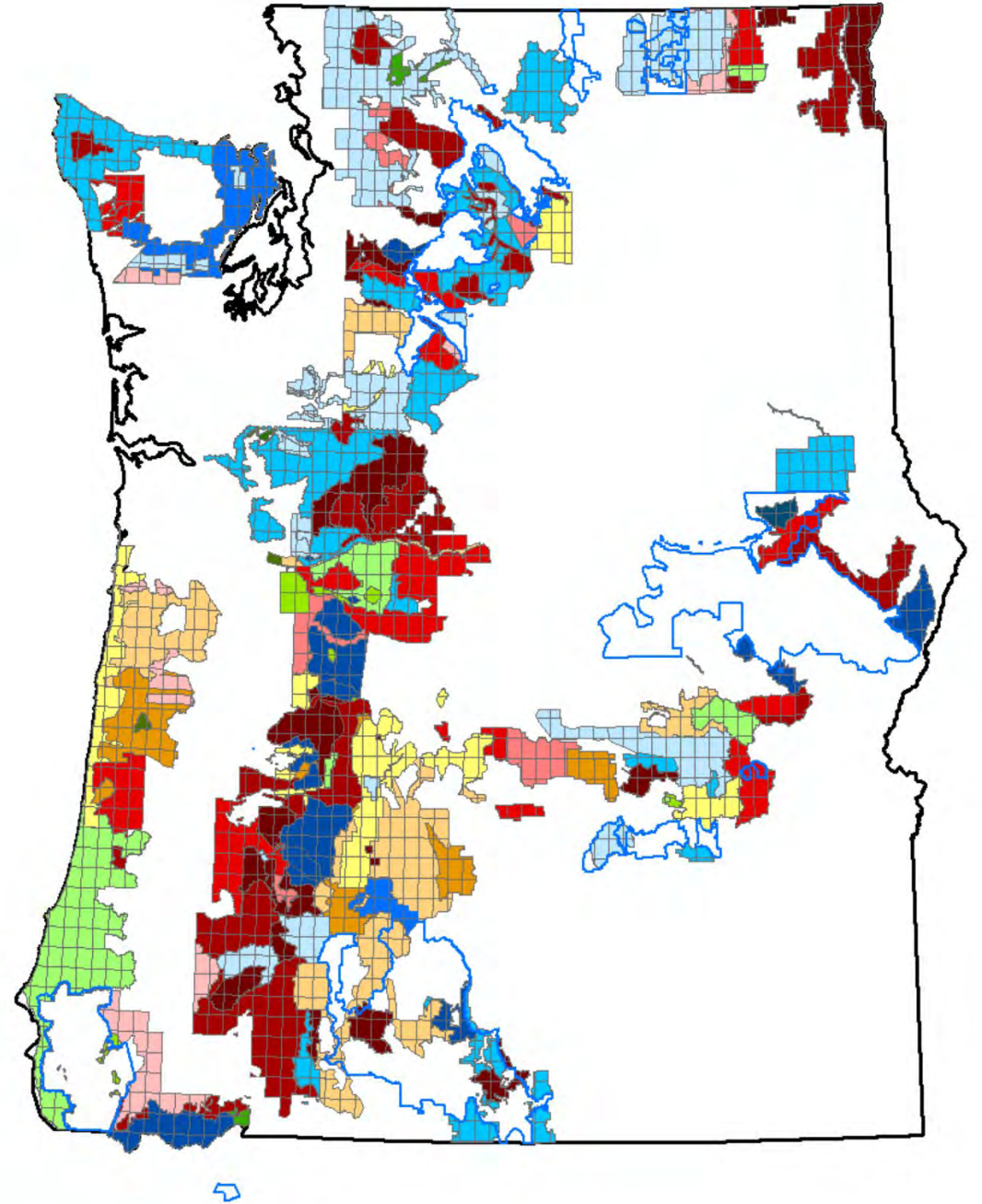
Overview

- Who we are
- What we have
- What we produce
 - Support
 - Products
 - “In the works”
 - The Region-wide Model
 - Structure class case study

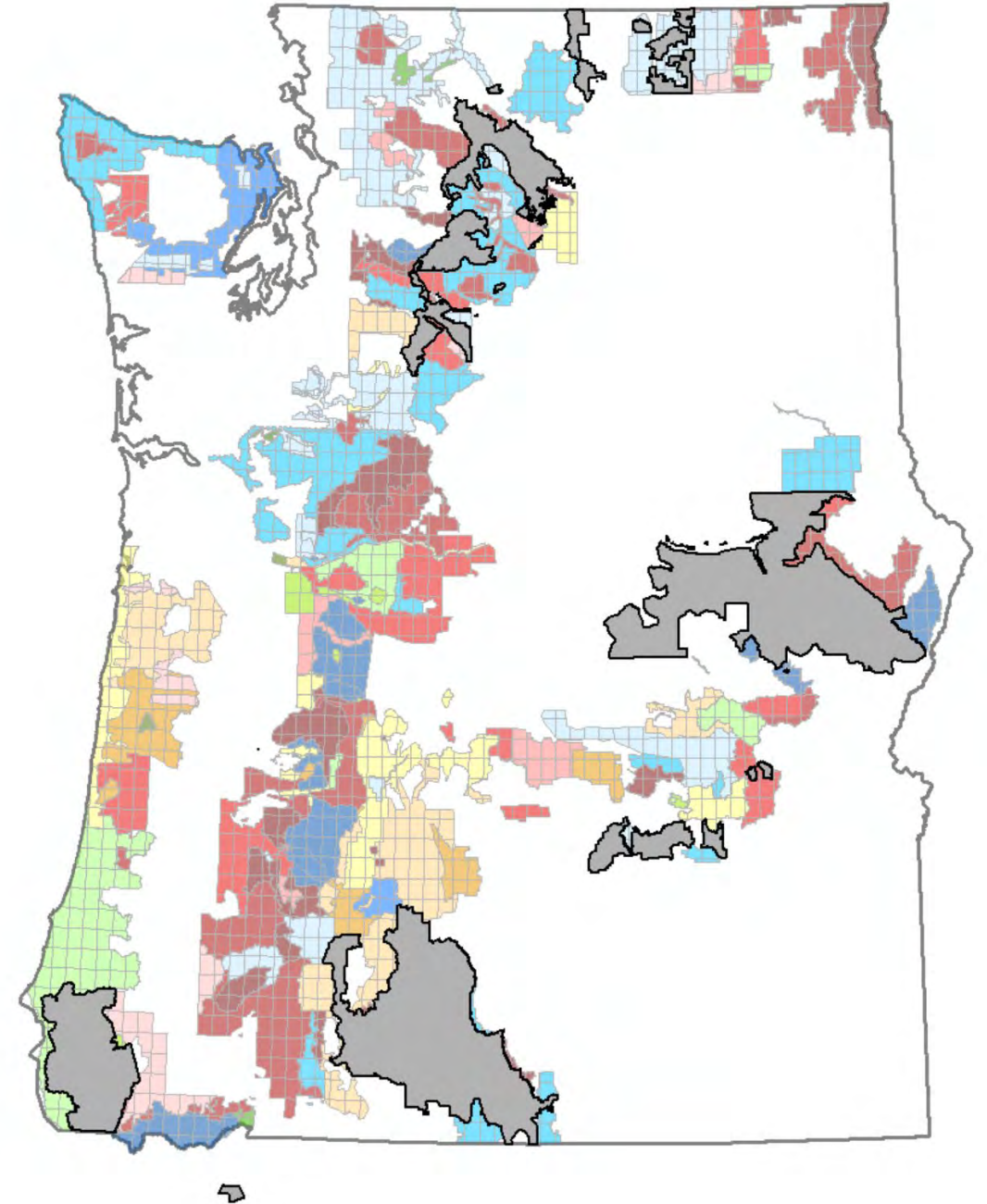
Who we are: The Biometrics team

- LiDAR
 - Partner with Data Resources Management (DRM)
 - LiDAR models, training plot acquisition
 - Project support & trainings
- We do more
 - FIA intensified grid plots, vegetation data on all scales, inventory & monitoring
- Support 17 forest units: “Leveraging”

What We Have: R6 LiDAR Coverage

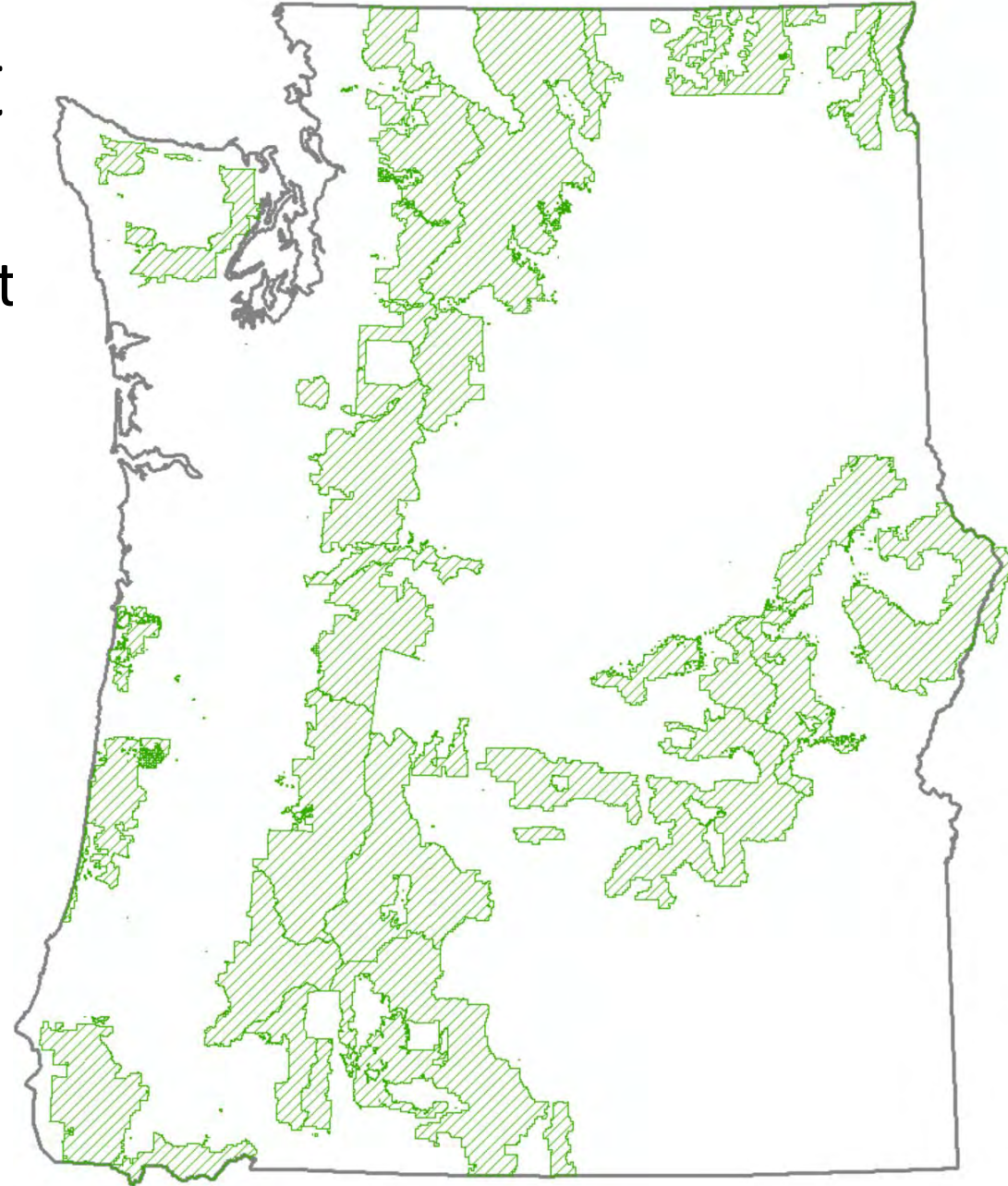


What We Have: R6 LiDAR Coverage



What We Produce: Support

- Support: project-based advising, data out
- Trainings:
 - Specific LiDAR Coverage & data location
 - Meet people where they are with GIS skills
 - Zonal Statistics & Raster Math
 - Contacts
 - Get comfortable and think creatively



What We Produce: Products

- LiDAR training plots
- Core linear model products
 - Biomass, board & cubic foot volume, basal area, stand density index, Curtis relative density index, quadratic mean diameter, trees per acre
 - By forest or cluster of forests, as appropriate for specific LiDAR & plot areas
- Special projects & improvements to data use/delivery
 - Consulting
 - Raster math
 - Region-wide need
- Our challenge: making it relevant to the planning process

What We Produce: in the works

- Partner projects:
 - Large Tree Maps (DRM)
 - Keeping it modern – i.e. updating with Digital Aerial Photogrammetry (DAP)
- The “Regional Model”
- Structure class models

The “Regional Model”

- The problem(s):
 - LiDAR exists where training plots do not
 - Seams between model areas
 - Training plots taken when and where possible
- The need:
 - An extensive network of plots
- The goal:
 - Use FIA plots

The “Regional Model”

- FIA is now FVS ready through FIADB
- A hefty scale: region-wide, 8000+ subplots
- An opportunity to work with large data & different modeling techniques (incl. KNN, RF)
- Moving forward cautiously, with advice
 - FIA plot vs subplot
 - LiDAR plot clips vs raster cell value interpolation
 - Bias concerns: plot design, plot vs pixel size, positioning errors, data source (training plots/FIA, LiDAR/DAP)

Structure Classes

- A need for updated structure classes
- Methods
 - Raster-based
 - Individual tree
- Which classes?
 - Specific to forest & area of practice (silviculture & wildlife)
 - Appropriate # classes & acceptable level of uncertainty
- Colville: QMD & Canopy Cover

Thanks!

Feel free to reach out:

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